

ANNOTATED VERSION OF ABSTRACT

Please note that the following clean copy abstract text appeared on page 1 in the specification as filed.

~~Equistatin, belonging to the type I repeated thyroglobulin domain, and known to be an inhibitor of cysteine proteases is found to also inhibit aspartic proteases with a different domain of the protein. The DNA encoding equistatin, an inhibitor of cysteine and aspartic proteases, is isolated from the sea anemone *Actinia equina*. The equistatin protein was found to be particularly active towards gut cysteine and aspartic proteases of a number of common insect pests of agricultural crops, such as Colorado potato beetle, corn rootworm, leafminer fly and thrips. P41 invariant chain fragment, another member of this family with only cysteine protease inhibitor activity was equally active towards the cysteine protease complement as was found for equistatin. Recombinant equistatin protein was found to be larvicidal against Colorado potato beetle and to strongly reduce fecundity of adult thrips. DNA encoding equistatin and other proteins containing similar type I repeated thyroglobulin domains may be cloned into vectors and used to transform plants thus conferring reduced susceptibility to damage by plant pests that have thiol and/or aspartic proteases as digestive enzymes including insects and nematodes and particularly Coleopteran, Dipteran and Thysanopteran insects.~~

CLEAN COPY VERSION OF ABSTRACT

Please replace the pending abstract with the following newly-submitted abstract:

A method of protecting a plant or part of a plant from insect or nematode infestation is disclosed herein. The method includes the steps of: (a) culturing cells or tissue from the plants; (b) inserting into the genome of the cells or tissue a sequence coding for assisting protease inhibitors selected from the group of proteins containing at least one type I repeated thyroglobulin domain, with a promoter sequence active in the plant to cause expression of the protein at levels which provide an insect or nematode controlling amount of the protein; and (c) regenerating resistant whole plants from the cells or tissue. Also disclosed is a transgenic plant or its sexual progeny which is resistant to attack by one or more insects or nematodes having digestive cysteine proteases. Also disclosed is an expression vehicle that includes a promoter effective to promote expression of a downstream coding sequence in plant cells, the expression vehicle being effective to express in plant cells insect controlling amounts of a protein that includes at least one type I repeated thyroglobulin domain.